SPEC® MPIM2007 Result

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IBM

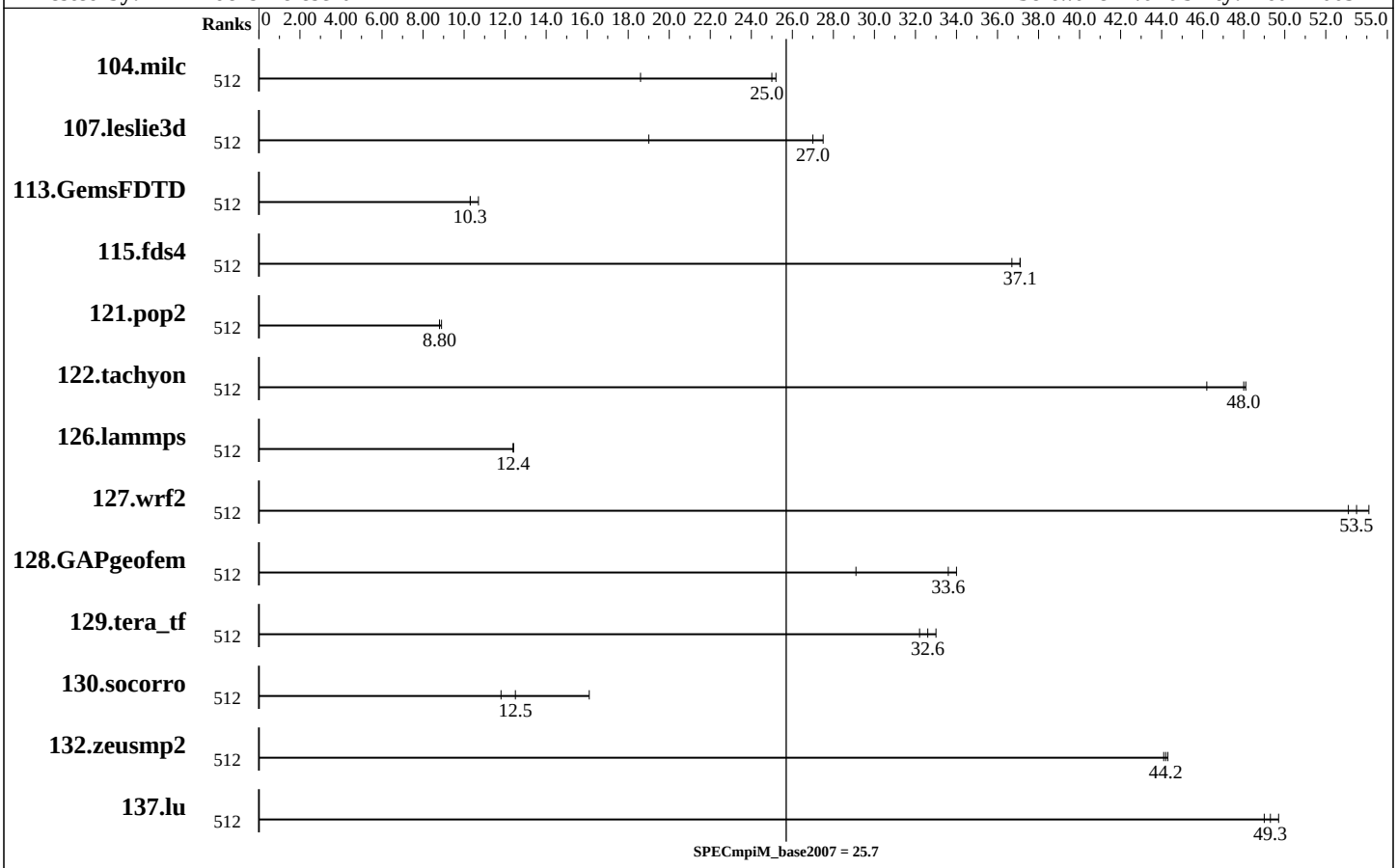
iDP (Intel Xeon L5420, 2.50 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 25.7

MPI2007 license: 37
Test sponsor: Indiana University
Tested by: Jens Doleschal

Test date: Dec-2009
Hardware Availability: Sep-2008
Software Availability: Jan-2009



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	512	62.2	25.2	**62.7**	**25.0**	84.0	18.6							
107.leslie3d	512	190	27.5	**194**	**27.0**	274	19.0							
113.GemsFDTD	512	611	10.3	590	10.7	**610**	**10.3**							
115.fds4	512	53.2	36.7	52.6	37.1	**52.6**	**37.1**							
121.pop2	512	**467**	**8.80**	469	8.80	466	8.90							
122.tachyon	512	60.5	46.2	**58.3**	**48.0**	58.1	48.1							
126.lammps	512	235	12.4	**235**	**12.4**	236	12.4							
127.wrf2	512	**146**	**53.5**	144	54.1	147	53.1							
128.GAPgeofem	512	60.8	34.0	70.9	29.1	**61.5**	**33.6**							
129.tera_tf	512	86.0	32.2	**84.9**	**32.6**	83.9	33.0							

Table continues on next page. Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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Results Table (Continued)

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
130.socorro	512	**305**	**12.5**	323	11.8	238	16.1							
132.zeusmp2	512	70.1	44.3	**70.2**	**44.2**	70.4	44.1							
137.lu	512	74.0	49.7	75.0	49.0	**74.5**	**49.3**							

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Hardware Summary

Type of System:	Homogeneous
Compute Node:	iDP node
Interconnects:	Gigabit Ethernet IB Switch
Total Compute Nodes:	64
Total Chips:	128
Total Cores:	512
Total Threads:	512
Total Memory:	2 TB
Base Ranks Run:	512
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--

Software Summary

C Compiler:	Intel C++ Compiler 11.1 for Windows (11.1.038)
C++ Compiler:	Intel C++ Compiler 11.1 for Windows (11.1.038)
Fortran Compiler:	Intel Fortran Compiler 11.1 for Windows (11.1.038)
Base Pointers:	64-bit
Peak Pointers:	64-bit
MPI Library:	MS MPI 1.0.6
Other MPI Info:	None
Pre-processors:	No
Other Software:	None

Node Description: iDP node

Hardware

Number of nodes:	64
Uses of the node:	compute
Vendor:	IBM
Model:	System x iDataPlex dx340
CPU Name:	Intel Xeon L5420
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	8
Cores per chip:	4
Threads per core:	1
CPU Characteristics:	1333 MHz FSB
CPU MHz:	2500
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	12 MB I+D on chip per chip, 6 MB shared / 2 cores
L3 Cache:	None
Other Cache:	None
Memory:	32 GB (FBDIMM 8x4-GB 667 MHz)
Disk Subsystem:	Western Digital 160 GB SATA WD160YS-23SHBO
Other Hardware:	None
Adapter:	Intel Corporation 80003ES2LAN Gigabit Ethernet Controller (Copper) (rev 01)
Number of Adapters:	2
Slot Type:	--
Data Rate:	Gigabit Ethernet

Continued on next page

Software

Adapter:	Intel Corporation 80003ES2LAN Gigabit Ethernet Controller (Copper) (rev 01)
Adapter Driver:	OS default (v.9.11.5.7)
Adapter Firmware:	2.4-0
Adapter:	Mellanox Technologies MT26418 [ConnectX IB DDR, PCIe 2.0 5GT/s] (rev a0)
Adapter Driver:	Mellanox WinOF (v. 2.0.0)
Adapter Firmware:	2.5.0
Operating System:	Windows HPC Server 2008 Service Pack 2
Local File System:	Windows/NTFS
Shared File System:	Network shared NTFS directory
System State:	Multi-User
Other Software:	--

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Software Availability: Jan-2009

Node Description: iDP node

Ports Used:	1
Interconnect Type:	Ethernet
Adapter:	Mellanox Technologies MT26418 [ConnectX IB DDR, PCIe 2.0 5GT/s] (rev a0)
Number of Adapters:	1
Slot Type:	PCIe x8 Gen2
Data Rate:	InfiniBand 4x DDR
Ports Used:	1
Interconnect Type:	InfiniBand

Interconnect Description: Gigabit Ethernet

Hardware	
Vendor:	ProCurve Networking
Model:	HP ProCurve Switch 5406zl Intelligent Edge J8697A
Switch Model:	HP ProCurve Switch 5406zl Intelligent Edge J8697A
Number of Switches:	1
Number of Ports:	144
Data Rate:	1Gbps Ethernet
Firmware:	--
Topology:	Single switch
Primary Use:	Cluster File System

Software

Interconnect Description: IB Switch

Hardware	
Vendor:	Cisco
Model:	Cisco SFS 7024D
Switch Model:	Cisco SFS 7024D
Number of Switches:	1
Number of Ports:	288
Data Rate:	InfiniBand 4x DDR
Firmware:	4.1.1.1.11
Topology:	Single switch
Primary Use:	MPI traffic

Software

Submit Notes

```
The config file option 'submit' was used.
```

Base Compiler Invocation

C benchmarks:
icl

C++ benchmarks:

126.lammps: icl

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icl ifort

Base Portability Flags

115.fds4: /DSPEC_MPI_UC_NO_TRAILING_UNDERSCORE /fpscomp:general
121.pop2: /DSPEC_MPI_WINDOWS_ICL
127.wrf2: /DSPEC_MPI_CASE_FLAG /DSPEC_MPI_WINDOWS_ICL
/DSPEC_MPI_COMM_F2C /us /Qlowercase
129.tera_tf: /fpscomp:general
130.socorro: /DSPEC_NO_UNDERSCORE /DSPEC_MPI_COMM_F2C /Qlowercase
132.zeusmp2: /DSPEC_MPI_WINDOWS_ICL /fpscomp:general

Base Optimization Flags

C benchmarks:
/O3 /QxSSE3 /Qipo /Qprec-div- /F3950000000

C++ benchmarks:

126.lammps: /O3 /QxSSE3 /Qipo /Qprec-div- /F3950000000

Fortran benchmarks:
/O3 /QxSSE3 /Qipo /Qprec-div- /F3950000000

Benchmarks using both Fortran and C:
/O3 /QxSSE3 /Qipo /Qprec-div- /F3950000000

Base Other Flags

C benchmarks:
/c /Fooptions /I:C:\Program Files\Microsoft HPC Pack 2008 SDK\Include
/link
/libpath:C:\Program Files\Microsoft HPC Pack 2008 SDK\Lib\amd64 msmpifec.lib msmpifmc.lib msmpi.lib
/Feoptions

Continued on next page

Base Other Flags (Continued)

C++ benchmarks:

126.lammps: `/c /Fooptions /I:C:\Program Files\Microsoft HPC Pack 2008 SDK\Include /link /libpath:C:\Program Files\Microsoft HPC Pack 2008 SDK\Lib\amd64 msmpifec.lib msmpifmc.lib msm /Feoptions`

Fortran benchmarks:

`/c /Fooptions /I:C:\Program Files\Microsoft HPC Pack 2008 SDK\Include /link /libpath:C:\Program Files\Microsoft HPC Pack 2008 SDK\Lib\amd64 msmpifec.lib msmpifmc.lib msmpi.lib /Feoptions`

Benchmarks using both Fortran and C:

`/c /Fooptions /I:C:\Program Files\Microsoft HPC Pack 2008 SDK\Include /link /libpath:C:\Program Files\Microsoft HPC Pack 2008 SDK\Lib\amd64 msmpifec.lib msmpifmc.lib msmpi.lib /Feoptions`

The flags file that was used to format this result can be browsed at
http://www.spec.org/mpi2007/flags/dell.ic10.windows.flags.20100128.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/mpi2007/flags/dell.ic10.windows.flags.20100128.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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